TECHNICAL REVIEW DOCUMENT for OPERATING PERMIT 950PAD072

to be issued to:

Metro Wastewater Reclamation District Adams County Source ID 0010097

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November 17, 1998
Revised August 24, 1999
Revised by Jacqueline Joyce March and August 2000

I. Purpose:

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA and during Public Comment. The conclusions made in this document are based on information provided in the original application submittal of October 10, 1995 and additional information received June 28, 1996, August 20 and December 16, 1999 and March 9, 2000 and comments from Metro received on April 28, 2000 during the Public Comment period. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised Construction Permit.

II. Source Description:

This source is classified as a wastewater treatment facility which falls into the Standard Industrial Classification 4952. Primary treatment removes solids from wastewater through screening, grit removal and primary clarification. Secondary treatment uses microorganisms to digest dissolved organic matter. Approximately half the wastewater treated also undergoes further treatment to remove ammonia and nitrates in a nitrification/denitrification process. Prior to release, the wastewater is treated with chlorine to kill remaining bacteria and

then dechlorinated with sulfur dioxide. The solids removed from the wastewater are treated using anaerobic digestion and recycled as compost, fertilizer, and soil conditioner. The composting process for these solids is permit exempt. During anaerobic digestion of the solids, digester gas (methane and carbon dioxide) is produced. Trigen-Colorado Energy Corporation then will use this low Btu gas to power two turbines for electric generation. Lastly, fugitive VOC and HAP emissions are released during the wastewater treatment process itself.

The facility is located in Adams County within an area designated as non-attainment for PM_{10} and Carbon Monoxide. The Denver Metropolitan area was previously designated by U.S. EPA as a non-attainment area for ozone. Under recently adopted revisions to the Federal Rules, the Denver metro area is no longer designated non-attainment for ozone. However, all SIP-approved requirements continue to apply in order to prevent backsliding under the provisions of Section 183(e) of the Federal Clean Air Act.

This facility is within 100 km of a Class I area, Rocky Mountain National Park, and there are no states within 50 miles. The applicant indicated that they are subject to the provisions of the Section 112(r) of the Federal Clean Air Act. Note that 112(r) requires the submittal of a risk management plan (RMP) by June 20, 1999 and the source has indicated that this plan has been submitted. Facility wide emissions are as follows:

<u>Pollutant</u>	Potential to Emit (tpy)	Actuals (tpy)
SO_2	245.16	134.96
NO_X	59.28	53.19
VOC	16.68	11.07
CO	99.0	93.5
H_2S	2.2	Neg.
HAPs	16.38	11.07

Potential emissions are permitted limits from construction permits and HAPs listed in the Division's inventory system. Actual emissions estimates are based on the most recent APENs submitted (December 1995 and May 21, 1999). The emissions listed above include all emissions at this facility associated with both Metro Wastewater Reclamation District equipment and Trigen-Colorado Energy Corporation equipment (Operating Permit 99OPAD212).

In early 1995, the Metro Wastewater Reclamation District (Metro District) undertook an independent environmental self-audit of its air emissions compliance program. During the course of this investigation, the Metro District discovered that there were inconsistencies and inaccuracies in the existing construction permits. The District disclosed this to the Air Pollution Control Division (APCD). In November 1995, the Metro District received a compliance-order-on-consent from the APCD requiring that the Metro District submit a permit modification application to have the permits corrected.

The environmental self-audit also revealed that the District 's wastewater treatment process emits more than two tons per year (TPY) of volatile organic compounds (VOCs), thus requiring a construction permit. Applications for a permit for wastewater treatment emissions and an application for modification of construction permits for digester gas combustion sources were both submitted on December 30, 1995.

Additionally, because the Metro District was emitting more than 100 TPY of sulfur dioxide (SO₂) an operating permit was required. In October, 1995, the Metro District submitted an application for an operating permit to the APCD.

In March 1998, the Metro District received an initial draft of the construction permit. Comments were submitted and an Initial Approval permit was submitted by the APCD for public comment on December 14, 1998. The terms of this Initial Approval permit were not acceptable to the Metro District and on December 30, 1998, the Metro District petitioned for a hearing before the Air Quality Control Commission (AQCC) to have those conditions changed.

The Metro District and the APCD subsequently reached agreement on the terms of Metro District's construction permits. On June 29, 1999, the APCD issued a draft construction permit for digester gas combustion sources. The Metro District requested a copy of the wastewater treatment construction permit by e-mail on July 7, 1999.

In April 1999, the Metro District and Trigen-Colorado Energy Corporation (Trigen) signed an agreement that requires Trigen to operate, maintain and upgrade the Metro District's cogeneration facility by May 21, 2000. The agreement calls for Trigen to install two new gas turbine generators at the District's cogeneration facility.

On May 21, 1999, Trigen submitted an application for a construction permit modification to include all of the Metro District's digester gas combustion sources and the two new gas turbines that Trigen intends to install before May 21, 2000. The fuel source will remain the same, but the equipment and operator will change. The operating permit will have the digester gas combustion sources operated by Trigen, while the Metro District operates the wastewater treatment plant.

There will be two operating permits for this facility. Trigen will be the permittee for the digester gas combustion sources. The Metro District will be the permittee for the wastewater treatment sources. This Technical Review Document pertains to the Operating Permit for the wastewater treatment sources only.

When this source was first installed in 1984, prior to the pre-cursor rule, it was considered a minor stationary source with respect to PSD. At that time, the

source was permitted with natural gas emission factors which did not take into account the H_2S in the digester gas. When the permits were corrected in 1998 the source was allowed to emit 245.16 tons per year of SO_2 without triggering PSD review even though they are now considered a major stationary source with respect to non-attainment area new source review (NSR) requirements for SO_2 (SO_2 is a precursor for PM_{10})¹. Any modification for SO_2 that is above significance levels or a modification of any other pollutant that is major in and of itself will be subject to non-attainment area NSR review requirements.

National Emission Standards for Hazardous Air Pollutants from Publicly Owned Treatment Works (POTW) have been promulgated by EPA (October 26, 1999) in 40 CFR Part 63 Subpart VVV. These requirements apply to POTWs located at a major source of HAP emissions. Determination of major source status would include any HAP emissions from the combustion sources (Trigen), as well as emissions from wastewater treatment operations. Sources shall notify the Division and EPA that they are subject to the requirements 120 days after October 26, 1999 or the day the source becomes subject the requirements (i.e. becomes a major source for HAP emissions). At this time, Metro has indicated that they are not a major source of HAP emissions and therefore are not subject to the requirements in 40 CFR Part 63 Subpart VVV. Upon notification, if necessary, that it is subject to the requirements of 40 CFR Part 63, Subpart VVV, this permit will be subject to the reopening requirements in Colorado Regulation No. 3, Part C, Section XIII.

III. Emission Sources:

The following sources are specifically regulated under terms and conditions of the Operating Permit for this Site:

Unit S015 - Wastewater Treatment Facility, Fugitive Emissions.

Discussion:

1. Applicable Requirements- The water treatment plant has been in operation since 1966 with several modifications since then. It was determined that emissions were above APEN deminimis levels and an Initial Approval Construction Permit 95AD893 was issued on December 14, 1998 and reissued on August 23, 1999 with the following applicable requirements:

 Visible emissions not to exceed twenty percent opacity during normal operation of the source. During periods of startup, process modification, or adjustment of control equipment visible emissions shall not exceed 30% opacity for more than six minutes in any sixty consecutive minutes

¹Metro Wastewater does not agree that their facility is a major stationary source for purposes of Non-Attainment Area New Source Review.

(condition 1).

Based on engineering judgement, the Division does not believe that visible emissions from the wastewater treatment operations will ever exceed 20% as wastewater treatment operations are insignificant sources of particulate emissions.

- Processing of wastewater shall not exceed 67,525 million gallons per year on a twelve month rolling total (condition 3).
- APEN reporting in accordance with Regulation No. 3, Part A, Section II.C (condition 4).

Note that the APEN reporting requirements are included in the General Conditions (Section IV, No. 21) of the operating permit.

- This source is subject to the odor requirements of Regulation No. 2 (condition 6).
- Emissions of air pollutants shall not exceed the following limitations (condition 7):

VOC 13.4 tons/yr

 Records of quarterly wastewater influent and effluent VOC and HAP concentrations, and monthly wastewater volume processed shall be maintained by the applicant (condition 8).

The primary purpose for the quarterly sampling of wastewater influent and effluent VOC and HAP concentrations was to determine emissions of VOCs and HAPs. Metro has since indicated that estimating emissions in this manner would be costly and proposed to calculate emissions based on an emissions estimate prepared for Metro by CH₂M Hill in 1992 for the Division's APEN project. Upon review of the CH₂M Hill report and additional information submitted to the Division on March 9, 2000, the Division has approved this emissions estimate. Therefore, the requirement to sample wastewater influent and effluent quarterly will not be included in the operating permit.

The due date of the first semi-annual monitoring report required by this operating permit will be more than 180 days after the initial approval construction permit was issued and/or the equipment commenced operation. Therefore, the Division considers that the Responsible Official certification submitted with that report will serve as the self-certification for construction permit 95AD893 and the appropriate provisions of the construction permit have been directly incorporated into this operating permit.

2. Emission Factors - Emissions of VOC and potentially HAP emissions are generated through both liquids and solids processes.

The source has proposed to calculate VOC emissions from the liquids processes using the emission factor determined in a CH₂M Hill report prepared for Metro in The emission factor in this report was determined to be 0.02 mg/l wastewater. This factor is comparable to the emission factor determined by actual measurement for Seattle's West Point Wastewater Treatment Plant of Metro and the Seattle plant are of similar capacity (133 MGD vs 141.5 MGD modeled) and both use similar processes and technology. This factor was determined using liquid influent and effluent data and the Bay Area Sewage Toxics Emissions (BASTE) fate model. Although the 1992 CH₂M Hill report does not provide data on the various runs made using the BASTE model, recent data on total suspended solids (TSS) and volatile suspended solids (VSS) from the Metro facility are close to those values used in the model that the emission factor is based on. In addition, Metro has implemented pretreatment programs that have reduced the occurrence and magnitude of certain HAP (also VOC) emissions in the effluent stream. With Metro's pretreatment program and the promulgation of more stringent standards on HAPs (many of which are also VOCs), specifically the NESHAP requirements for certain source types (i.e. wood furniture manufacture), it is reasonable to presume that less volatile contaminants are entering Metro's wastewater treatment process and subsequently lower emissions would be expected.

Solids processes at this facility include dissolved air flotation (DAF), centrifuges, digestion, sludge storage and composting. The CH₂M Hill report, indicates that VOC emissions from DAF and digestion are negligible.

The CH₂M Hill report provided an emission factor of 6,000 nanograms of VOC per gram of compost. This factor is based on a laboratory simulation of windrow composting (digested sludge) performed by Los Angeles county.

Although the CH₂M Hill report estimated VOC emissions from cetrifuges and sludge storage, the report does not specifically identify the emission factors used to determine those emissions. Therefore, the source proposed to estimate emissions using information from the report and adjusting for flow. The CH₂M Hill report identifies maximum, probable and minimum VOC emissions from the centrifuges and sludge storage processes. The source proposed to average the maximum and minimum predicted emissions and divide by the daily wastewater processing rate to generate an emission factor dependent on the daily wastewater processing. Since the Division will require that a rolling twelve month total be maintained to monitor compliance with the annual limits, this factor will be divided by 12 to give an emission factor for monthly VOC emissions. An emission factor of 0.821 lbs/mo VOC per MGD for the centrifuge and 3.28 lbs/mo VOC per MGD for the sludge storage.

No specific emission factors will be provided in the operating permit for estimating HAP emissions, as it has not been the Division's policy to include this, unless a source has received a synthetic minor permit for HAP emissions. It should be noted that even though no specific emission factors are include in the

permit for determining HAP emissions, the facility is subject to APEN reporting requirements for HAPs as required by General Condition No. 21. Note that the following HAP emissions were predicted by the sources latest APEN submittal (December 27, 1995).

<u>C.A.S. #</u>	<u>SUBSTANCE</u>	EMISSIONS (lb/yr))
67-66-3	Chloroform	700.6
75-09-2	Methylene Chloride	2685.3
127-18-4	Tetrachloroethylene)	1793.8
108-88-3	Toluene	12161.4

- **3. Monitoring Plan -** The source will be required to monitor the quantity of wastewater and compost monthly. Monthly emissions of VOC will be calculated using emission factors and the average daily wastewater processing rate and the monthly quantity of compost processed. The source will be required to monitor compliance with the odor requirements by taking monthly scentometer readings. The readings shall be taken by a reader with a current and valid certification.
- **4. Compliance Status -** A current APEN reporting criteria pollutants and hazardous air pollutants is on file with the Division. The modifications to the construction permit reflecting current operations at the facility have been completed and incorporated into the operating permit. Therefore, this unit is currently considered to be in compliance with all applicable requirements.

IV. Insignificant Activities

Air conditioning or ventilating systems

Sanding of streets and roads

Brazing, soldering, or welding operations

Truck and car wash units

Office emissions, including cleaning, copying, and restrooms

Aerosol can usage

Road and asphalt paving operations

Adhesive use

Caulking operations

Fugitive emissions from landscaping activities

Emergency events

Smoking rooms and areas

Plastic pipe welding

Vacuum cleaning systems

Acetylene, butane, and propane torches

Architectural painting and maintenance

Emissions of air pollutants which are non-criteria or non-criteria reportable pollutants

Janitorial activities and products

Grounds keeping activities and products

Sources of odor emissions which do not utilize emission control equipment

Electrically operated curing and drying ovens

Storage of butane and propane
Indirect sources
Laboratory facilities
Natural gas vehicle fleet fueling facilities
Forklifts
Sandblast equipment
Use of pesticides, fumigants and herbicides according to FIFRA requirements
Non-road engines as defined in 40 CFR 82.2

V. Alternative Operating Scenarios

No alternative operating scenarios were requested.

VI. Permit Shield

The source requested the permit shield for those requirements it identified as applicable to the emission unit. There are two permit shields that can be obtained for the Operating Permit. In general, the permit shield applies to the applicable requirements and that compliance with the Operating Permit shall be deemed compliance with all applicable requirements specifically identified in the Operating Permit. If the source specifically requests and provides a justification, they can be shielded from requirements that are not applicable to the facility or to an emission unit. The non-applicable requirements that the source requested to be shielded from are listed in the operating permit.

VII. Accidental Release Program - 112(r)

Section 112(r) of the Clean Air Act mandates a new federal focus on the prevention of chemical accidents. Sources subject to these provision must develop and implement risk management programs that include hazard assessment, a prevention program, and an emergency response program. They must prepare and implement a Risk Management Plan (RMP) as specified in the Rule.

Section 68.215(e) of the Federal Clean Air Act requires the Division to address four issues in regards to operating permit sources subject to 112(r):

1. Verify source submitted and registered an RMP by deadline

EPA is in the process of setting up a Website specifically for 112(r) plans. All 112(r) sources will electronically submit their plans to this "designated central location". The Division will require sources certify in their annual compliance certification that they are/are not subject to 112(r) and they have/have not submitted a Risk Management Plan (RMP) to the designated central location by June 20, 1999. In addition, the Division will check the 112(r) website to verify that a RMP was actually submitted to the website by the deadline. Failure to submit a RMP by the June deadline by sources subject to 112(r) will be

considered a permit deviation for reporting purposes under Title V.

2. Verify that source owner/operator has submitted a source certification or in its absence has submitted a compliance schedule.

As mentioned above, the Division will require that sources certify in their annual compliance certification that they are/are not subject to 112(r) and they have/have not submitted a Risk Management Plan (RMP) to the designated central location by June 20,1999. If they are subject to 112(r) but did not submit an RMP on time, a compliance schedule under the provisions of Title V must be submitted to the Division by the source. Failure to submit a RMP or a compliance schedule by the June deadline by sources subject to 112(r) will be considered a permit deviation for reporting purposes under Title V.

3. For some or all sources use one or more mechanisms such as completeness check, source audits, record review, or facility inspections to ensure permitted sources are in compliance with the requirements of this part

The Division may choose to perform any or all of the activities listed under this subsection. Although there is no specific number of such actions required in the 112(r) rule, a June 3, 1997 draft 112(r) implementation guidance from EPA states that "Congress considered a requirement that 1.4 percent of the RMPs be audited annually, but dropped that provision."

The Division will, at a minimum, perform a "completeness check" on an unspecified number of Title V 112(r) sources. The website that EPA is in the process of developing to accept 112(r) RMP's will include software that will electronically conduct a completeness check on the RMP's. For the purposes of this operating permit, such check shall serve as the completeness check required under 68.215(e)(3). As noted in the Preamble to the final 112(r) rule (June 20, 1996 Federal Register, page 31691), "EPA agrees that the review for quality or adequacy of the RMP is best accomplished by the implementing agency..." In Colorado, the implementing agency is the U.S. EPA. If the EPA website software indicates that a source did not submit a complete plan, it will be considered a permit deviation for reporting purposes under Title V and the Division may initiate an enforcement action for failure to meet the Title V permit condition (see below). Per the Preamble (page 31691), the Division may perform the completeness checks in a timeframe consistent with the source's Title V certifications.

4. Initiate enforcement action as necessary

This refers to enforcement under Title V, not under Part 68 (112(r)). If a source fails to file a RMP or a compliance schedule by the June deadline or the EPA software indicates that the RMP is not complete, it will be considered a permit deviation for reporting purposes under Title V and the Division may initiate an enforcement action.